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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/673,894 | 09/29/2003 | Mohammad Hossein Zarrabizadeh | 23 | 1975 |
| 7590 | | 11/21/2007 | | |
| Docket Administrator Lucent Technologies Inc. Room 3J-219 101 Crawfords Corner Road Holmdel, NJ 07733-3030 | | | EXAMINER AZARIAN, SEYED H | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|-------------------------------|---|--|
| Office Action Summary | Application No. 10/673,894 | Applicant(s) ZARRABIZADEH, MOHAMMAD HOSSEIN | |
| | Examiner Seyed Azarian | Art Unit 2624 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36, 38 and 39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36 and 38 is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-35 and 39 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 9/29/2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

RESPONSE TO AMENDMENT

1. Applicants' arguments filed, 8/30/2007, see page 9 through page 13, of remark, with respect to cancellation of claim 37, and amended claims 36, 38 and 39, have been fully considered but they are moot in view of the new ground (s) of rejection as necessitated by applicant's amendment is made.

Contrary to the applicant's assertion, as he pointed out that Reed reference does not teach "repeat the bits of the watermark data for successive frames for multiple images".

The applicant is respectfully reminded that, it is noted that the features upon which applicant relies, "multiple images" are not recited in the rejected claim(s).

However, Reed discloses (column 20, lines 2-14, FIG. 13 is a flow diagram illustrating preprocessing operations in the detector shown in FIG. 12. The detector performs a series of preprocessing operations on the native image 930 to prepare the image data for further analysis. It begins by filling memory with one or more frames of native image data (932), and selecting sets of pixel blocks 934 from the native image data for further analysis (936). While the detector can detect a watermark using a single image frame, it also has support for detecting the watermark using additional image frames. As explained below, the use of multiple frames has the potential for increasing the chances of an accurate detection and read, also column 9, lines 13-25, Fig. 2, blocks of image data and replicates a watermark in "each of these blocks", (refer to successive frames).

Furthermore in response to applicant's argument, limitations in the amended claim 1, that the Reed reference fails to show, "that repetition be made in the same block positions of the

frames for which it is repeated”. Examiner indicate that Reed discloses Fig. 2, column 9, lines 13-25, the embedder depicted in FIG. 2 operates on blocks of image data (referred to as tiles) and replicates (same block positions) a watermark in each of these blocks. As such, the carrier signal and assignment map both correspond to an image block of a pre-determined size, namely, the size of the tile. To encode each bit, the embedder applies the assignment map to determine the corresponding image samples in the block to be modified to encode that bit. Using the map, it finds the corresponding image samples in the carrier signal. For each bit, the embedder computes the value of image samples in the watermark information signal as a function of the raw bit value and the value(s) of the corresponding samples in the carrier signal, also column 10, lines 2-16, if the carrier signal indicates that the corresponding sample should be inverted, the embedder adjusts the watermark sample downward to represent a one, and upward to represent a zero. In this manner, the embedder “computes the value of the watermark samples for a raw bit using the assignment map to find the spatial location of those samples within the block”).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-6, 9-12, 14-30, 32-35 and 39, are rejected under 35 U.S.C. 102(b) as being anticipated by Reed et al (U.S. patent 6,590,996).

Regarding claim 1, Reed discloses a method for use in watermarking a video signal, the method comprising the steps of (column 3, lines 56-66, watermark can be view as an information signal, such as an image, audio or other media);

replicating at least selected ones of bits of additional information to be impressed upon a video signal by placing said bits into at least one selected bit of an average value of a chrominance portion over a block of said video signal (column 5, lines 48-54, color image are represented as an array of color vectors in a color space, such as RGB or YUV. The watermark may be embedded in one or more of the color components of an image. In some implementations, the embedded may transform the input image into a target color space, and then proceed with the embedding process in that color space, and column 8, lines 43-56, in addition to the information conveyed in the message, the embedded may also add control bit values (signature bits) to the message to assist in verifying the accuracy of a read operation, also column 9, lines 13-25, Fig. 2, blocks of image data and replicates a watermark in each of these blocks);

and supplying said original and replicated bits to be impressed in the same block position in successive frames (column 19, lines 4-14, watermark is replicated in blocks of the original image).

Regarding claim 2, Reed discloses the invention as defined in claim 1 wherein said block position is based on said video signal having one Y, one U and one V value for every 2x2 block of full resolution of an original input video signal (see claim 1, also column 5, lines 48-54, color image are represented as an array of color vectors in a color space, such as RGB or YUV. The watermark may be embedded in one or more of the color components of an image. In some

implementations, the embedded may transform the input image into a target color space, and then proceed with the embedding process in that color space, and column 9, lines 37-52, N by N block, also column 21, lines 53-65, refer to desired resolution).

Regarding claim 3, Reed discloses the invention as defined in claim 1 wherein all of said bits of additional information that are to be impressed on a first one of said successive frames are replicated to be impressed on at least a second one of said successive frames that is for display without any frame being displayed between said first frame and said second ones of said successive frames (column 39, lines 5-24, displaying).

Regarding claim 4, Reed discloses the invention as defined in claim 1 further comprising the step of adding an offset bias to an average value of a chrominance portion of at least one block of at least one frame of said successive frames that have said original and replicated bits impressed upon them in the same block positions (column 5, lines 48-54, color image are represented as an array of color vectors in a color space, such as RGB or YUV. The watermark may be embedded in one or more of the color components of an image. In some implementations, the embedded may transform the input image into a target color space, and then proceed with the embedding process in that color space, and column 8, lines 43-56, in addition to the information conveyed in the message, the embedded may also add control bit values (signature bits) to the message to assist in verifying the accuracy of a read operation, also column 9, lines 13-25, Fig. 2, blocks of image data and replicates a watermark in each of these blocks).

Regarding claim 6, Reed discloses the invention as defined in claim 4 wherein said offset bias is independent of any value added to said average value to bring said average value within a safe range (Fig. 8, column 17, lines 22-37, computing array of gain value and desired range).

Regarding claim 10, Reed discloses the invention as defined in claim 4 wherein additions are made to the chrominance portion of ones of the pixels of said at least one block until total of such additions equals the product of said offset bias and the number of pixels in a block, said additions being independent of any other changes made to the chrominance portion of said ones of the pixels (column 2, lines 11-39, refer to changing color and selecting pixels).

Regarding claim 11, Reed discloses the invention as defined in claim 1 further comprising the step of including a prescribed data sequence within said additional information to be impressed upon a chrominance portion of said video signal (column 6, lines 61 through column 7, line 25, combining the water mark with input signal are termed non-linear, such as processes that employ dither modulation, modify least significant bits, or apply quantization (decimated) index modulation, further quantization index modulation techniques employ a set of quantizers, also column 8, lines 43-56, in addition to the information conveyed in the message, the embedded may also add control bit values (signature bits) to the message to assist in verifying the accuracy of a read operation).

Regarding claim 12, Reed discloses the invention as defined in claim 11 wherein said prescribed data sequence is known to a receiver of said video signal after it is watermarked (column 16, lines 54-63).

Regarding claim 14, Reed discloses the invention as defined in claim 11 wherein said prescribed data sequence is impressed, at least in part, upon prescribed blocks of at least one frame of said video signal (column 4, lines 11-20, data sequence).

Regarding claim 16, Reed discloses the invention as defined in claim 11 wherein said prescribed data sequence is impressed upon like-positioned prescribed blocks of multiple ones of frames of said video signal (column 9, lines 36-51, multiple blocks).

Regarding claim 18, Reed discloses the invention as defined in claim 1 further comprising the step of including a known data sequence within said additional information to be impressed upon a chrominance portion of said video signal, wherein said known data sequence is intermixed among said additional information so as to be scattered among the blocks of a frame (see claim 1, also column 4, lines 55-67, refer to distributing the message or scattering).

Regarding claim 20, Reed discloses a method for use with a receiver of a video signal containing additional information impressed upon a chrominance portion of said video signal, the method comprising the step of: combining extracted initial additional information of like block positions from prescribed frames to determine the final additional information, supplying as an output said final additional information (see claim 1, also Fig. 19, column 30, lines 54-63, extracting the bits).

Regarding claim 25, Reed discloses the invention as defined in claim 21 wherein said determined quality for each of said frames is a function of the number of errors in each of said frames for a known data sequence which is embedded in expected ones of the blocks of each of said frames (column 9, lines 3-13, the error correction coding function).

Regarding claim 27, Reed discloses the invention as defined in claim 21 wherein said determined quality is expressed as a weight value, one weight value being developed for each frame (column 15, lines 6-16, weight depending on whether they are derived from a tile with a greater measure of validity or accuracy).

Regarding claim 34, Reed discloses the invention as defined in claim 33 wherein said at least one secondary unique identifying code is made up of a series of codes that distinctly identifies individual frames of said prescribed frames (column 35, line 44 through column 36, line 4, a second implementation makes chrominance changes for certain color).

With regard to claims 5, 9, 15 and 17, the arguments analogous to those presented above for claims 1, 2, 4, 14 and 16 are respectively applicable to claims 5, 9, 15 and 17.

With regard to claims 19 and 21-24, the arguments analogous to those presented above for claims 18, 3, 11 and 20 are respectively applicable to claims 19 and 21-24.

With regard to claims 26, 28, 29 and 30, the arguments analogous to those presented above for claims 1, 2, 25 and 27 are respectively applicable to claims 26, 28, 29 and 30.

With regard to claims 32, 33 and 35 and 39, the arguments analogous to those presented above for claims 1, 4, 20, 25, 27 and 34 are respectively applicable to claims 32, 33 and 35-36 and 39.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been

obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 13 and 31, are rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al (U.S. patent 6,590,996) in view of David (U.S. patent 6,538,599).

However regarding claims 13 and 31, Reed does not explicitly state “data sequence is a Barker sequence”. On the other hand David teaches (column 2, line 59 through column 3, line 6, a representative code might correspond to a Barker sequence technique).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Reed invention according to the teaching of David because it provides techniques for enhanced signal-processing gains, which can easily be implemented in an imaging device such as video camera.

Allowable Subject Matter

6. Claims 7 and 8, objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Allowable claims

7. The following is an examiner’s statement of reasons for allowable claims.

With respect to claims 36 and 38, closest prior art of (Reed and David) references do not disclose or suggest, among other things, “ an extractor for extracting said non-video information

from said video signal; and a sequence processor receiving at least said extracted non-video information and detecting at least one prescribed sequence that was impressed upon m least one frame of said video signal, and for determining a number of errors in said at least one prescribed sequence for each of a plurality of grouped frames, and a frame weighting trait which uses a per-frame quality measure derived as a function of said number of errors in each of said plurality of frames to combine extracted like-block positioned non-video information from plurality of frames into an output value for said block position for said grouped frames”.

These key features in combination with the other features of the claimed invention are neither taught nor suggested by the art of record.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Contact Information


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (571) 272-7443. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.

Status information about the PAIR system, see [http:// pair-direct.uspto.gov](http://pair-direct.uspto.gov). Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seyed Azarian
Patent Examiner
Group Art Unit 2624
November 17, 2007


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PRIMARY EXAMINER